AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A demodulator for a mobile phone~~, which can simultaneously perform operation of improving the demodulation error rate caused by such as noise and external feedback loop operation being correction after detected, and can reduce the current consumption by restraining the increase of the process time at the simultaneous operation with an external correction circuit after detected, and can improve the CN ratio (ratio between carrier power and noise power),~~ comprising:

a received error rate improving means which improves ~~the~~ a received error rate by weighting ~~for~~ differences ~~at~~ of symbols before and after a current symbol to be demodulated ~~at the present time~~ and applying feedback ~~for symbols~~;

a weighting means for applying weighting ~~for~~ to correction values after ~~detected~~ detection of an external ~~another~~ loop; and

a deciding ~~the order of priority~~ means for deciding ~~the~~ an order of priority for a plurality of ~~plural~~ correction values~~; and~~ ,

wherein the demodulator is operable to adapt ~~an adapting~~ itself to various radio wave ~~environment and the~~ environments and different kinds of noise by using said weighting means and said deciding ~~the order of priority~~ means.

2. (currently amended): A demodulator for a mobile phone in accordance with claim 1, further comprising:

a delay circuit and an adder for obtaining a detected phase difference ~~at~~ for said current symbol ~~point~~ to be demodulated ~~at the present time~~.

3. (currently amended): A demodulator for a mobile phone in accordance with claim 1, further comprising:

delay circuits and adders for obtaining phase differences ~~at~~ for the symbols ~~symbol points~~ before and after said currrent symbol ~~point~~ to be demodulated ~~at the present time~~.

4. (currently amended): A demodulator for a mobile phone in accordance with claim [[1]] 3, further comprising:

operation circuits ~~which~~ operable to obtain a received quality ~~being~~ as a difference between each respective phase difference ~~among~~ between symbols obtained at said delay circuits and said adders and an ideal value.

5. (currently amended): A demodulator for a mobile phone in accordance with claim 4, wherein[[:]] said adders input said received quality ~~obtained at said operation circuits to detected phase value of each of said symbol points before and after said symbol point to be demodulated at the present time~~ during the current symbol to be demodulated by using a feedback circuit ~~operation~~.

6. (currently amended): A demodulator for a mobile phone in accordance with claim [[1]] 3, further comprising:

a dividing circuit ~~which demodulates correctly with using~~ operable to use outputs from said adders, in case that said detected phase difference at said current symbol ~~point~~ to be demodulated includes a difference generated by not detecting phase correctly.

7. (currently amended): A demodulator for a mobile phone in accordance with claim 1, further comprising:

weighting circuits ~~which make~~ operable to attenuate feedback amounts ~~attenuate in order~~ to avoid a divergence of operated results in case that said feedback amounts are large when said adders input said differences by said feedback circuit ~~operation~~.

8. (currently amended): A demodulator for a mobile phone in accordance with claim [[1]] 3, further comprising:

logic circuits ~~which~~ operable to perform bit expansion at input terminals of said adders and also perform bit expansion for values to be applied via feedback and decrease round-off error by omitting designated subordinate bits after all operation is finished and returning the number of bits to ~~the~~ an original number.

9. (currently amended): A demodulating method for a mobile phone~~, which can simultaneously perform operation of improving the demodulation error rate caused by such as~~

~~noise and external feedback loop operation being correction after detected, and can reduce the current consumption by restraining the increase of the process time at the simultaneous operation with an external correction circuit after detected, and can improve the CN ratio (ratio between carrier power and noise power),~~ comprising ~~the steps of~~:

~~improving the received error rate by~~ applying weighting ~~for~~ to differences ~~at~~ of symbols before and after a current symbol to be demodulated ~~at the present time~~ and applying feedback ~~for said symbols~~;

applying weighting ~~for~~ to correction values after ~~detected~~ of an external ~~another~~ loop;

deciding ~~the~~ an order of priority for a plurality of ~~plural~~ correction values~~; and~~ ,

wherein ~~adapting itself to~~ various radio wave ~~environment and the~~ environments and different kinds of noise are accommodated ~~by using said applying weighting process and said deciding the order of priority process~~.

10. (currently amended): A demodulating method for a mobile phone in accordance with claim 9, further comprising:

delaying and adding signals ~~for obtaining~~ to obtain a detected phase difference at said current symbol ~~point~~ to be demodulated ~~at the present time~~.

11. (currently amended): A demodulating method for a mobile phone in accordance with claim 9, further comprising ~~the step of~~:

delaying and adding signals ~~for obtaining~~ to obtain a detected phase differences ~~at~~ before and after said current symbol ~~point~~ to be demodulated ~~at the present time~~.

12. (currently amended): A demodulating method for a mobile phone in accordance with claim [[9]] 10, further comprising ~~the step of~~:

~~operating for~~ obtaining a received quality ~~being~~ as a difference between each respective phase difference ~~among~~ between symbols obtained ~~at~~ during said delaying and adding ~~signals process~~ and an ideal value.

13. (currently amended): A demodulating method for a mobile phone in accordance with claim 12, wherein[[:]] said adding signals process inputs said received quality ~~obtained at said operation process to detected phase value of each of said symbol points before and after said symbol point to be demodulated at the present time~~ during the current symbol to be demodulated by using feedback ~~operation~~.

14. (currently amended): A demodulating method for a mobile phone in accordance with claim [[9]] 11, further comprising ~~the step of~~:

demodulating ~~dividing process which demodulates correctly with~~ using ~~outputs~~ results from said adding process, in case that said detected phase difference at said current symbol ~~point~~ to be demodulated includes ~~differences~~ a difference generated by not detecting phase correctly.

15. (currently amended): A demodulating method for a mobile phone in accordance with claim 9, further comprising ~~the step of~~:

attenuating ~~weighting process which makes~~ feedback amounts ~~attenuate in order~~ to avoid a divergence of operated results in case that said feedback amounts are large when said adding process inputs said difference by said feedback ~~operation~~.

16. (currently amended): A demodulating method for a mobile phone in accordance with claim [[9]] 11, further comprising ~~the step of~~:

performing ~~logic operating process which perform~~ bit expansion ~~at input terminals~~ on inputs of said adding process and also ~~perform~~ performing bit expansion ~~for~~ on values to be applied as feedback and ~~decrease~~ decreasing round off error by omitting designated subordinate bits after all ~~operation is~~ operations are finished and returning the number of bits to ~~the~~ an original number.